DAT 301 Homework 3

Choose a topic or lesson in Statistics and present it in ioslides. Include an example. Here are some suggestions.

- simple linear regression
- point estimation
- interval estimation
- hypothesis testing
- p-value

These are only suggestions. You can choose other topics that are related to Statistics. You can choose some application of Statistics in some other discipline, such as: actuary, biology, chemistry, engineering, computer science, physics, math, etc. Do not spend a lot of time on choosing a topic. That's not important. The main point of this assignment is to create slides programmatically and use some common statistical tools.

Requirements: your ioslides presentation of the topic of your choice must include:

- at least 8 slides
- at least one plotly plot (it would be nice if it can be 3D, if the topic allows)
- at least two ggplot plots
- at least two slides with math text written in Latex
- at least one slide with R code (for example, a code that creates one of the plots you included)

NOTE: You will present your slides to the whole world, by publishing them on RPubs webpage: https://rpubs.com (see below for more details). You do NOT need to include your name in the slides, nor that the slides are part of a homework, nor which homework it is, nor which class it is, nor that it is related to ASU. It can be completely anonymous. (Don't worry, your grade and possible grader's comments will be available only to you in Canvas, just as for any other assignment submitted in Canvas).

You can start by opening a new file in Rstudio: `New File --> R Markdown... --> Presentation`. Keep the default choice `HTML (ioslides)`. This gives you a template file. Before knitting it, you need to save it.

To make font nicer than default (this is optional), you can use html's tag object `<style>` right after the YAML part of the file. Here is an example of YAML, followed by the `<style>` definition, which you can include in your code if you want (you can also make any changes to this code):

```
---
title: "hw3"
author: "Sabiha Mahzabeen"
output: ioslides_presentation
---

<style type="text/css">
body p, div, h1, h2, h3, h4, h5 {
  color: black;
  font-family: Modern Computer Roman;
}
slides > slide.title-slide hgroup h1 {
    color: #8C1D40; <!--the maroon color-->
    }
h2 {
color: #8C1D40; <!-- the maroon color-->
}
</style> <!-- end of defining font in various parts of slides -->
```

What to Submit in Canvas

Since the slides on RPubs may be anonymous, to prove it was you who created them, **you MUST submit in Canvas** the following files:

- a pdf file which only contains your name and the link to the rpubs website with your slides (see below); if you need to make any comment regarding the topic you choose or anything to point out, feel free to include it in this file, but it is not required
- the Rmd file that creates the html file with slides
- the html file with ioslides, which your Rmd file created
- all other files needed, if applicable; for example, if you have a logo, or some png/jpeg image inserted); otherwise, the html file will not compile correctly in Canvas and you will not get full credit; also, make sure the images that you need are not called within Rmd using absolute address; that is, do not include full path of the image, referring to some folder in your computer, which, of course, does not exist in Canvas. Instead, store the image in the same folder where your Rmd file is. A code in Rmd file designed to call the image from the same folder will be able to work in any computer where your Rmd file is checked, provided you didn't forget to upload the image. This prevents losing any credit.

RPubs Publication

In addition to submission in Canvas, you need to upload your slides to https://rpubs.com. Open an account there (it's free!). Use any credentials of your choice (NOT ASU credentials). These credentials (username and password) will not be known to me or the grader. As mentioned in class, RPubs is a server where you can publish your slides created by your Rmd file. Uploading is free! Once you are done with the Rmd file, you should upload it on RPubs website, along with auxiliary files, if applicable. Check whether it works, and copy the link of your RPubs slides page and paste it into the pdf file which you need to submit in Canvas. The grader will open your pdf file in Canvas and click on this link for grading. Keep in mind: your username and password in RPubs webpage are of your own choice, and are unknown to us. Later, when you get interviews for jobs, you can use your RPubs webpage to show to prospective employees what you can do in R (which is the main purpose of this homework). While doing this assignment, think about what you could include, so you can proudly show it at possible job interviews or at your work.

IMPORTANT!

Copying a file from someone or some webpage is cheating and violates academic integrity! This automatically results in the score of 0 pts on the assignment, and other possible sanctions include, but are not limited to: course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, please see http://provost.asu.edu/academicintegrity.

Also, before submitting your Rmd file, make sure it compiles in a new session, which does not have any package previously loaded. Your Rmd file must load (using `library()` function) all the packages that it needs in order to create your html file. However, do NOT include command `install.packages()`. It is not considered a good coding manner if you force someone to install a package. Instead, RStudio will automatically notify the user (i.e. grader who might be testing your Rmd file) that it needs to install certain packages in order to run the file, in case those packages are not already installed on the computer.

If your Rmd file does not compile but you submitted some output of your code that does not work, it is considered as cheating and so, unless there is an obvious and quick fix, you can expect 0pts on the assignment.